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ABSTRACT

Children presently in school face a multitude of problems new and unique to their age group. To combat these problems educators must find new solutions and search out ways of reaching young people before it is too late for them to respond. By examining locus of control, and showing an effective treatment program for transitioning from externality to internality, it may be possible to predict other behaviors and eliminate negative behaviors (drug use, low self-esteem, poor grades) associated with externality which will assist in keeping children in school. Showing a link between locus of control and motivation may help educators develop a better understanding of student behavioral variables. This study examined the relationship between locus of control and motivation. The effects of a multidimensional summer camp program on the locus of control of 41 children at risk for academic failure was also examined. The subjects were given a pre- and posttest at the beginning and end of the six-week summer camp. The effects of the program from pre- to posttest were not statistically significant; however, the pretest scores were significantly more external than previously established norms. Statistical significance was also found by age and gender with younger females being the most external and older males being the most internal. A moderate negative correlation was found linking one of the five motivation subscales (independent judgment) with locus of control. (LLL)

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Effect Of A Summer Enrichment Program For At-Risk Youths On Locus Of Control And The Relation To Motivational Orientation

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Presented at the 1992 Meeting of the
Eastern Educational Research Association
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CHAPTER I

Introduction

Since the development of the Rotter Scale (Rotter, 1966) two and a half decades ago, locus of control as a construct has been an area of intense focus for many researchers. This construct has originated from Rotter's (1954) social learning theory as a belief that reinforcement comes either from an external or an internal source. If reinforcement is believed to come from an external source (fate, luck or chance) one does not - or does not see a need to - accept responsibility for events. Whereas, if reinforcement is seen to come from an internal source (self), responsibility of events is attributed to one's own actions.

Locus of control (LOC) has been negatively correlated with self-esteem (Fish & Karabenick, 1971; Ryckman & Sherman, 1973), self-concept (Martin & Coley, 1984), verbal fluency (Brecher & Denmark, 1969; Penk, 1969), academic performance (Crandall, Katkovsky, & Crandall, 1965; Lefcourt, 1976), achievement (Nowicki & Roundtree, 1971) and many other areas. Studies have shown that internals are more perceptive, inquisitive, and efficient in processing information (Lefcourt). They have also been shown superior in intentional and incidental learning (Wolk & Ducette, 1974) and to have higher aspirations (Lao, 1970). Internals tend to maintain stronger feelings of

competence and self-determination than externals in the presence of constraints, thereby also maintaining greater motivation and satisfaction (Freedman & Phillips, 1985). Persons with an internal locus of control have the view of being captains of their own ships (Kay, 1990).

On the other end of the locus continuum, externality is positively related to debilitating anxiety (Butterfield, 1964; Watson, 1967) and linked to both reduced utilization of birth control (MacDonald, 1970) and a greater likelihood to become smokers (Clarke, MacPherson, & Holmes; 1982; Phares, 1968) and drug abusers (Jurich & Polson, 1984). The wide range of areas where internality is the preference to externality is obviously much broader than a pure academic orientation.

CHAPTER II

Review of Literature

In a review of the literature, Joe (1971) stated the research suggests externals describe themselves as less able to show constructive responses in overcoming frustration. Externals report more feelings of anger and depression than internals (Abramowitz, 1969; Siegal & Griffin, 1984), exhibit more feelings of powerlessness (Sedlin, 1972), and hopelessness (Serednesky, 1974), and perform significantly poorer on verbal problem solving tasks (Wildstein, & Thompson, 1989). Not surprisingly, externality is directly related to suicidal tendencies (Williams, & Nickels, 1969).

One method of effectively preventing these tendencies from reaching fruition is to intervene and one effective intervention is early identification of these at-risk youths (Eddy, Wolpert, & Rosenberg, 1987). Students possessing an external LOC earn lower grades and also begin work more slowly than those with an internal LOC (Allen et al., 1974). Most drug users have an external LOC, and this is even more evident in drug abusers (Jurich & Polson, 1984). This study defined drug use as occasional or infrequent use of legal or nonaddictive drugs and drug abuse as physical or psychological dependence upon drugs exemplified by almost daily ingestion. While drug users are more apt to use drugs for recreational

purposes, drug abusers use drugs to cope with an external LOC.

It would appear extreme internality would be desirable if the research were correct, but this is simply not the case. Extreme internality results in individuals accepting responsibility for many events that can not be controlled and has even been shown to be linked with physical health problems. Young children with an extreme internal orientation are thought to hold themselves responsible for negative life experiences following parental separation (St. Yves, 1989). Alcoholics more frequently score significantly in the internal direction (Goss, & Morosko, 1970). This was confirmed more recently by Johnson and Reszka (1986) who found frequent drinkers of alcohol scored significantly lower (more internal) than infrequent drinkers on Rotter's scale.

Although alcoholics, contrastingly, also have been shown to have a more external LOC (Carmen, 1974; MacKay, 1961; Williams, 1970), it should be noted that these discrepancies in the research are attributed to differing reasons for becoming alcoholic. Extreme internality results in an attempt to control typically uncontrollable events such as the lives of others, acts of nature, and international events (Schneider, et al., 1989). This is thought to contribute to stress, and it appears the internal alcoholic drinks to reduce or escape this stress, whereas the external alcoholic drinks to escape

negative feelings of self-worth (Jurich & Polson, 1984).

Extreme internality as a contributor to stress has been linked with the development of gastroduodenal ulcers (Brady, 1958; Brady, Porter, Conrad, & Mason; 1958). In his review of the literature, Lefcourt (1966, p. 209) mentioned the Walter Reed Army Institute of Research group found "only monkeys who exerted control over a painful stimulus developed ulcers" and "...production of ulcers seems to be related to having control over aversive stimulation." Accepting control for events which can not be reasonably controlled is a hazard of extreme internality.

A slight measure of externality should not be thought of as negative. Externals are better equipped to accept failure because it can be explained through their external orientation (Efran, 1964). While too much of this may seem to lead to a negative self-concept, an appropriate amount is needed for the internal to avoid accepting blame for all failures. A moderate level of internality is therefore a more appropriate goal.

History of Measurement

The majority of the research has utilized the scale provided by Rotter to measure LOC in adults. Other scales developed to measure this construct are also largely focused on adults. Few scales measure this construct in children, and, of

these, many seem to have serious deficiencies. The Childrens' Picture Test of Internal-External Control (Battle & Rotter, 1963) seems to require role-playing or perspective-taking skills on the part of the child which may not be present at all age levels. This instrument presents the child with a cartoon and then asks what the child would do if he or she were the character. The Locus of Control Scale for children (Bialer, 1961) has been shown to have reliability and format weaknesses (Nowicki & Strickland, 1973). The Intellectual Achievement Responsibility Questionnaire (Crandall, Katkovsky and Crandall, 1965) chooses to use the forced choice format which is sometimes difficult for younger subjects. The Nowicki-Strickland Locus of Control Scale for Children (NSLOCS) serves the intended purpose of the present study by using a simpler questioning format and providing reasonable reliability.

While many researchers have measured LOC, few have involved the application of a treatment condition comparison group. Of those that have, the population was typically older and the treatment was significantly shorter than the one proposed. Nowicki and Barnes (1973) conducted research on the effects of a structured one-week camp on LOC of inner-city teenagers. After only one week, the subjects were shown to change toward internality. The subjects were 95% African-American and 5% Caucasian with 13 as a modal age. It is the

intent of the present study to extend these findings and correlate change in LOC with motivational orientation using the Harter Scale of Intrinsic-Extrinsic Orientation.

Harter (1981) created a learning orientation scale in which five dimensions are defined by an intrinsic and an extrinsic pole: preference for challenge versus preference for easy work (challenge subscale), curiosity/interest versus teacher approval (curiosity subscale), independent mastery attempts versus dependence on the teacher (mastery subscale), independent judgment versus reliance on the teacher's judgment (judgment subscale), and internal versus external criteria for success/failure (criteria subscale). Higher-order factoring has yielded two distinct clusters of subscales: The first three dimensions (challenge, curiosity, and mastery) form one factor and are interpreted as more motivational in nature; the remaining two (judgement and criteria) are viewed as more cognitive-informational in nature.

Harter (1975a) tested the relative strength of mastery motivation and need for approval in 40 four-year-old and 40 10-year-old upper-middle-class children. Mastery motivation was defined as the desire to solve problems for the sake of discovering the solution. Need for approval was inferred from responsiveness to social reinforcement. Mastery motivation was the major determinant for older subjects, particularly males.

In contrast, need for approval was important for females, but not for males. Contrary to prediction, approval was not the major determinant for younger subjects. They exhibited a form of mastery motivation which involved the repeated production of interesting stimulus events rather than a concern for correctness.

LOC/MOT Relationships

Harter defines motivational orientation as reasons children choose to engage in mastery behavior. These interests are reflected by the scale as intrinsic interest or extrinsic approval. LOC refers to responsibility for the outcome of behavior - internal (self) or external (someone else). A more basic interpretation of the two explains motivational orientation as the reason a behavior is evoked, whereas LOC orientation places responsibility for the behavior or event. Although Harter emphasizes that the two constructs should not be confused (Reeve & Loper, 1983), it appears they contain common elements. If a child views himself as responsible for reinforcement, he or she would more likely engage in behaviors that allow him or her to provide that reinforcement. The opposite would be true for the child who perceives reinforcement as coming from an external source. The externally reinforced child would engage in activities or emit

behaviors that could be most often reinforced from that external source. In effect, the reason for a behavior would seem to be related to the perceived locus of reinforcement. Therefore, it would seem that someone who is intrinsically motivated would also be more internally oriented toward accepting responsibility for behavior. The same should hold true for an extrinsically motivated individual and a tendency to be more externally oriented for placing responsibility. The individual difference of LOC as it relates to intrinsic motivation has received minimal attention (Baron, & Ganz, 1972; Earn, 1982; Lonky, 1978). Other researchers (Nunn, Montgomery, & Nunn; 1986) have successfully used the NSLOCS to measure motivational factors related to school performance. There is a significant relationship between internal LOC and achievement motivation for dyslexics (Bosworth & Murray, 1983), and normal high school students (Trommsdorff & Schmidt-Rinke, 1980). Reeve, Olson, and Cole (1987) successfully used LOC as one predictor variable for intrinsic motivation. Lonky (1978) found that LOC mediated participants' responses to verbal reinforcements with praise increasing intrinsic motivation for internals relative to externals.

There is a need for further research examining the relation between the LOC construct and other variables as noted by Joe (1971). The Harter scale is relatively unstudied and

presents a variable of motivational orientation that appears linked to LOC orientation. This study hopes to provide validity for both instruments by examining the relationship of these two variables. By utilizing a younger sample of subjects from a typically external background, a more extreme external orientation for LOC is expected prior to treatment. There is a need for more research at the extreme ends of the LOC continuum (Joe, 1971). By providing a structured treatment and using a younger age group at-risk for academic underachievement and chemical dependency, this study intends to provide that research.

Justification

An important aspect of this treatment is that it provides a structured environment for children. Harris (1958) studied the feelings, attitudes, and ideas of adults who, as children, attended the University of Minnesota Nursery school in the late 1920s. Those reared in structured situations were decisive, confident, self-accepting, and achievement oriented. Those raised in an unstructured home situation were indecisive, distrustful, and pessimistic; they also perceived success and failure in terms of good or bad luck. This implies the structure provided a move toward internalization that remained in effect even into adulthood.

Sherman (1984) conducted a three-year longitudinal study using no treatment condition and found LOC significantly more internal with age. Although the differences for gender only approached significance, he also found that males tended to be more internal than females. The instrument used in this study was the Nowicki-Strickland LOC Scale for Children. Previous research has provided evidence that a locus of control orientation can be shifted from external to internal (de Charms, 1972; Omizo & Cubberly, 1983; Omizo, Cubberly, & Omizo, 1985).

Statement of Problem

Children presently in school face a multitude of problems new and unique to their age group. As a result of the divorce rate soaring, never before have so many children come from fatherless homes. The drug problem is escalating despite the President's Task Force Against Drugs. Not only are the problems of all children growing more severe and life threatening, but particularly hazardous is the life of the United States inner-city teenager. "United States teenagers have the highest rate of illicit drug use of any industrialized nation in the world. Every seven minutes, authorities arrest a young person for a drug offense; for drunk driving, one of every 30 minutes" (Staff, 1991, p. 5).

Like many United States cities, the one chosen for this study suffers many problems. The youths are at-risk for alcohol and chemical dependency as well as academic underachievement. Students at-risk because of basic reading and writing difficulties are more likely to drop out of school (Gentile & McMillan, 1990). Preventing these difficulties which lead to illiteracy requires guidance from parents and teachers beginning from early childhood and which follows natural growth and development (Lipson, 1986). Illiteracy and low socioeconomic status are correlated positively with juvenile delinquency (Basu, 1984). The geographic area of this study is high in violence and crime and has suffered a severe loss of employment opportunities.

Of those adults that are employed in the United States, up to 45 million are either functionally or marginally illiterate (Goddard, 1987). These numbers do not encompass those that do not work. There are many ways that illiteracy can be costly. Not only are these costs direct (loss of competitive industrial edge internationally, job errors, workers' compensation, and remedial training) but also indirect (welfare, crime, and uninsured hospitalizations paid for by taxes; Schoultz, 1986). The personal effects are much more serious and less often mentioned. Countless examples of these exist. One such example is a child asking mommy or daddy to read a bedtime

story and the parent sadly responding, "I can't." It seems these problems may be self-perpetuating particularly in these more personal examples. To combat these problems and prevent our youth from following these patterns, educators must find new solutions and search out ways of reaching our young people before it is too late for them to respond.

By examining locus of control and showing an effective treatment program for transitioning from externality to internality, it may be possible to predict other behaviors and perhaps eliminate these negative behaviors (drug use, low self-esteem, poor grades) associated with externality which will assist in keeping our children in school to allow for a successful completion. Through the identification of externally oriented children, educators can prevent other behaviors such as suicidal tendencies, anger, and poor academic performance. By showing a link between LOC and motivation, educators will develop a better understanding of both constructs, facilitating an increased understanding of student behavioral variables in the process.

The initial level of externality is expected to be higher than the means found in the Nowicki-Strickland (1973) study. Expected relationships between the constructs of motivation (MOT) and LOC are that LOC internality will be linked to an intrinsic MOT orientation. A change is expected from LOC

pretest to posttest as subjects are predicted to become more internal as a result of attending the Project Y.E.S. (Youth Enrichment Services) experience. The three key questions to be addressed by this study are as follows:

1) How does the initial LOC level of externality compare with the Nowicki-Strickland norms?

2) What is the effect of the treatment (six-weeks of Project Y.E.S.) on LOC for male and female subjects of different ages?

3) What is the relationship between the orientation of LOC and motivation?

CHAPTER III

Method

Subjects

The subjects were 132 children between the ages of seven to 13 years. They were 55% male and 45% female from a medium to low socioeconomic background and from the inner-city of a mid-size Mid-Atlantic state. The subjects were predominantly African-American, Bi-Racial, and Caucasian respectively.

All subjects were chosen based upon their voluntary participation in a six-week summer camp called Project Y.E.S.. This project was created by West Virginia University faculty through funding by sources such as West Virginia University Extension programs and the Governor's Task Force on Drug Free Communities. This program is designed and targeted for at-risk youths and aims to enhance self-esteem, foster better nutritional habits, encourage decision making, develop computer literacy skills, and create an awareness for drug and alcohol prevention as well as promote other areas such as health and safety. In many cases, this project is designed to provide a structured environment where one may not have previously existed. The majority of children attending this camp are African-Americans and are from low socioeconomic backgrounds. Both groups have been found more likely to have high external orientations (Battle & Rotter, 1963; Nowicki-Strickland, 1973).

Instrument

The Nowicki-Strickland Locus of Control Scale for Children (1973) was used to assess the LOC concept. The authors report reliability coefficients ranging from .68 to .81 and have established construct validity through significantly high correlations with other LOC instruments.

This is a 40-item yes or no format test given as a paper and pencil measure. Locus of control is measured by the additive score on the instrument with the higher score representing an external locus of control. Each question is weighted equally and is worth one point. There are 25 "yes" questions and 15 "no" questions so that a disproportionate number of questions are not negatively worded.

The Harter Scale of Intrinsic-Extrinsic Motivation was used to measure motivational orientation. The reliability and factorial validity of the scale have been adequately demonstrated. Additional validity studies with a total of 2,925 subjects in Grades 3-9 have been reported. Developmental data show that across Grades 3-9 there was a shift from intrinsic to extrinsic on the motivational cluster (MOTCLUS). Conversely, there was a dramatic developmental shift from extrinsic to intrinsic on the cognitive-informational cluster (COGCLUS). Issues involved in the MOTCLUS are what the child wants to do, likes to do, and prefers. A high score on this

subscale is interpreted to mean the child is intrinsically motivated in the mastery process. What does the child know, on what basis does he or she make decisions, and how much has the child learned about the rules of the game called "school" are all issues covered by the COGCLUS (Harter, 1980). A high score on this cluster tells us the child can make these judgments autonomously. Harter explains that an intrinsic score on one cluster does not necessarily mean the other cluster will also be an intrinsic score. They are relatively independent.

Due to a difference in grading formats, the Harter Scale was modified by the examiner to provide a simpler format and to more closely resemble the LOC instrument design. The modification was limited to scoring and did not alter the actual instrument. The scale chooses a Likert-type format which was scored using only the extreme answers making it more obviously dichotomous and similar to a yes/no format. In contrast to LOC, however, higher point values reflect an intrinsic score and individual questions maintained the original ordinal scale values of one (extrinsic) or four (intrinsic).

Procedure

The subjects were told the examiner was gathering information concerning the attitudes and opinions of different

age students to better understand how they may differ. The experimenter explained that the instrument was not a test and that simply their true feelings were desired. The items were each read aloud twice by the examiner. Teen mentors, ranging from 14 to 21 years of age (13 African-American, three Caucasian, one Bi-Racial), guided small groups to explain questions as the examiner read aloud. These guidelines were followed to make the items more understandable and reduce any possibility of confusion from reading the written text. Even though the LOC instrument is written at the fifth-grade reading level, not all participants were expected to read at that level based upon the variation in ages and grade levels of the subjects. Testing took place during the first week of the six-week summer camp and again during the sixth week. In addition, during the sixth week the Harter Scale was also administered. The testing took place at the Project Y.E.S. Learning Center Complex (LCC).

Independent Variables

Treatment. The treatment involved a six-week summer camp targeted at enhancing self-esteem, fostering better nutritional habits, promoting health and safety, and increasing computer literacy and writing skills for children at-risk for drug and alcohol dependency as well as academic underachievement.

Age. The subjects were divided by age into two groups rather than analyzing data for each age level. Group one ranged from six to nine years of age and group two ranged from 10 to 13 years. The median ages for the groups were 7.66 and 11.37 years respectively.

Gender. The sample was also blocked, based on gender.

Analysis of the Data

Although data were collected for 116 individuals for the pretest, due to the voluntary nature of the program, these same 116 subjects were not present for the posttest. Of those 116 that took the pretest 10 individuals incorrectly filled out the instrument and were removed from the study. Of the remaining 106 subjects, 41 were present for the posttest, thereby forming the treatment group. An additional 26 subjects were present for the posttest but had not taken the pretest. Because they had taken the posttest only, they formed the control group. From the 30 completed Harter instruments, 18 were from the treatment group and 12 were from the control group. Attendance by name was kept at the camp and is recorded on the instrument itself, to facilitate interpretation of data from pre- to posttest on all instruments. Other than use in data analyses, the names and results are being kept strictly confidential. The chosen treatment and control groups were selected to enable

the researcher to show the effect or lack of effect from attending the majority of the Project Y.E.S. experience.

To answer research question 1, "How does the initial LOC level of externality compare with the Nowicki-Strickland norms?," unpaired t-tests were conducted comparing the study participants' LOC with the norms established by Nowicki-Strickland. Younger versus older students were compared with the norms separately for pretest and posttest scores.

To answer research question 2, "What is the effect of the treatment (six weeks of Project Y.E.S.) on LOC for male and female subjects of different ages?," two procedures were conducted. One procedure was a one-factor analysis of variance with experimental versus control grouping as the independent variable and LOC posttest scores as the dependent measure. The other procedure was a paired t-test comparing the LOC pretest and posttest scores of the experimental group. A two-factor analysis of variance was conducted with LOC pretest scores of only those in the experimental group as the dependent measure and gender and age as the independent variables. Another two-factor analysis of variance was conducted with LOC posttest scores from all participants who took the posttest as the dependent measure and age and gender as the independent variables.

To answer the final research question, "What is the

relationship between the orientation of LOC and motivation?," several correlations were conducted.

CHAPTER IV

Results and Interpretation

Question 1

Grouping all pretest scores by age and examining these means in comparison to the Nowicki-Strickland norms resulted in higher scores for the present sample and an approach to significance ($p = .0548$) for children in the younger age group (6-9 years). Based upon these measurements, this group is nonsignificantly different for LOC at the younger age group from the onset of this study. The older group, however, is significantly more external than their similar age peers. The children from the older age group (10-13 years) displayed significantly ($p = .0001$) higher scores than the Nowicki-Strickland norms (see Tables 1 and 2).

These differences remain evident following intervention as well. It is possible that the present intervention could have had a positive effect and the differences in these groups still could be significant. The lack of a statistically significant change from pre-to posttest is therefore, partially responsible for this effect. Grouping all posttest scores by age and examining these means against the Nowicki-Strickland norms resulted in a nonsignificant p-value of .1417 for the younger age group and a statistically significant p-value of .0001 for the older group (see Tables 3 and 4).

These results are interpreted to mean that the present sample of predominantly African-American subjects remained significantly more external after treatment as compared to the predominantly Caucasian sample used by Nowicki and Strickland. Because older students were significantly more external in relation to the norms than younger students were (.0001 versus .142, respectively) implies that the differences in these two racial groups become more pronounced and distinct with maturity. It appears the LOC values of younger children from the present sample are not significantly different from other similar aged children of different racial origins. The differences do become statistically significant when these children fail to become more internal with age at a similar rate as their Caucasian peers.

Question 2

A second analysis of possible differences between groups on LOC posttest scores was conducted. Although a one factor ANOVA did not reveal significant differences between groups, the mean score of the (posttest only) control group, 18.962, was higher (n = 26, SD = 3.268) and therefore more external, than the mean posttest score for the (pretest and posttest) treatment group 17.707 (n = 41, SD = 4.285) suggesting a move toward internality. This difference resulted in a p-value of

.207 which was not statistically significant (see Table 5).

This difference in scores could be interpreted as occurring as an effect of the treatment imposed; but to avoid bias, it should be noted that the difference is nonsignificant and could also have other causes.

A third analysis was conducted to examine possible change from pre- to posttest for the treatment group (n = 41). The scores of the treatment group did not differ significantly from pretest to posttest with a mean (posttest minus pretest) of -.146 and a paired t-value of -.217. Despite the lack of statistical significance for this measure, it should be noted that the difference is a move, however slight, toward internalization (see Table 6).

Again, the assumption that this change is attributable to the effects of treatment is not entirely justified. Other factors should also be objectively considered (i.e., program attendance, testing, and statistical regression). The nonsignificance of this measure should also be noted.

A two factor analysis of variance (ANOVA) was conducted to examine the main effects of age and gender on pretest and posttest scores. The pretest scores revealed a statistically significant interaction (p = .0439) which is explained by younger males scoring more internally than younger females but older males scoring more externally than older females. This

female-move toward internality with an increase in age is sharply contrasted by a slight move toward externality by the males as they mature with age. Other notable results from this test reveal both older males and older females scored more internally than younger males and females on the posttest, females of the younger age group had more external scores on both pre-and posttest as compared to younger males, and males in general were more internal on both pre-and posttest as compared to females. From pre- to posttest both older females and younger males became more external, while younger females and older males became more internal. Age as a factor approached significance on the posttest with a p-value of .0624 and on the pretest with a p-value of .0751 (see Tables 7 and 8).

These results would be expected from reviewing the previous research showing males and older subjects as being more internal. In obvious contrast to this is the move toward externality by the older females and younger males. These two unexpected factors are most likely responsible for the lack of statistical significance for age on the pretest and posttest.

Question 3

To facilitate understanding of the Harter scale of motivation, the subscales and clusters contained within this

instrument are shown in a simple diagram.

MOTIVATION

Cognitive cluster (COGCLUS)	**Motivational cluster (MOTCLUS)**
Independent Judgement	Personal Challenge
Internal Criteria Success/Failure	Curiosity/Interest
	Individual Mastery

A correlation matrix was produced to examine relationships among motivation subscales and clusters with LOC posttest scores. The cognitive-informational cluster showed a negative correlation with LOC posttest scores ($n = 30$, $r = -.384$, $p = .073$) and the differences in pre- to posttest scores ($r = -.208$). However, the motivational cluster showed a positive correlation with LOC posttest scores ($r = .170$). The individual subscales of the cognitive-informational cluster revealed independent judgment (IJ) to have a moderate negative correlation of -.430 and internal criteria (IC) with a smaller negative correlation of -.097 (see Table 9). To investigate this correlation further, a simple regression was conducted using the cognitive-informational cluster and LOC posttest scores. This resulted in a p-value of .073 which approaches significance (see table 10).

Since the higher LOC score reflects externality and a lower MOT score is more extrinsic, a negative correlation may show a link between these two constructs. Most importantly,

the moderate negative correlation (-.430) of the MOT subscale of Independent Judgement and LOC posttest scores should be noted and examined.

Other Analyses

Other analyses of significance should also be mentioned although the original research hypotheses have already been examined and answered.

A two-factor ANOVA was conducted using age and gender as independent variables and all LOC pretest scores (n = 105) as the dependent variable. The different age groups consisted of 39 subjects being 6 to 9 years of age and 66 being 10 to 13 years of age. Age as a factor resulted in statistical significance (p = .0129) and the interaction of age and gender was also significant (p = .0438). The interaction is explained by younger males being more internal than younger females but older males being more external than older females. The significance of age is explained by the decrease in externality from younger aged group to older aged group (see Table 11).

Examination of the motivational instrument results revealed significant findings as well. A two-factor ANOVA using Internal versus External Criteria for Success/Failure from the cognitive-informational cluster of the motivational instrument as the independent variable and age and gender as

dependent variables revealed a significant interaction with a p-value of .0016. Younger males scored higher (mean = 16.5) than older males (mean = 14.25) and younger females scored lower (mean = 12) than older females (mean = 18.333, see Table 12). It would be expected that the older males would have had higher scores than younger males. These same older males that failed to internalize LOC seem also to display a difficulty in becoming more autonomous. They appear to perceive success and failure as dependent upon more extrinsic variables than younger age males. This is contrary to expectations.

Conducting the same analysis and substituting the Curiosity/Interest subscale scores from the motivational cluster as the dependent variable resulted in a significant interaction as well (p = .0403). Younger males scored lower (mean = 15.5) than older males (mean = 17.5) and younger females scored higher (mean = 23) than older females (mean = 17). The older females would be expected to obtain higher scores than the younger females. This implies that older females require more teacher approval rather than engaging in activities simply for reasons of curiosity or interest. Overuse of extrinsic rewards has been shown to cause a development of teacher dependence for females (Biehler & Snowman, 1986). This would seem to be a possible explanation of this finding. Gender as a factor approached significance

with a p-value of .0702 (see Table 13).

CHAPTER V

Discussion

Acknowledging the limitations of this study (nonrandom selection, incomplete attendance records, and lack of surety for complete control group nonattendance), the significance of certain analyses should be discussed. The difference in posttest scores between the control and treatment groups was small favoring the treatment group with a lower external mean score. Due to the lack of attendance records, there is no way of showing that the control group did not attend a significant portion of the camp experience. This major weakness may account for the lack of significance in this comparison. Ideally, a comparison should be made with similar age youths from similar socioeconomic and ethnic backgrounds that did not attend any portion of the camp. Due to research constraints, this was not possible.

Findings

Findings of significance from this study were that the present sample of predominantly African-Americans was significantly more external than previously established Caucasian norms. Of particular interest, was the significantly high level of externality for African-American older males. Secondly, there was a moderate negative correlation between the

two instruments suggesting a link between motivation and LOC. And thirdly, a significant interaction was discovered within the Curiosity/Interest subscale of the cognitive informational cluster of motivation. This interaction was the result of younger females scoring much higher than older females when they would be expected to score lower.

There was a significant difference from pre-to posttest for the treatment group. Although a large number of students did attend consistently throughout the summer, lack of attendance records prevented the certainty of treatment group attendance. There was, however, a slight move toward internalization that could suggest effectiveness of the treatment. With more stringent program administrative constraints, this trend could be more accurately depicted.

These findings are a contrast to those of Nowicki and Barnes (1973) who found change toward internality in LOC after only one week of an intensive highly structured camp experience. One possible explanation of this contrast in findings is a difference in program goals. The camp experience of Nowicki and Barnes appears to have been more specifically targeted at developing a change in LOC, whereas the Project Y.E.S. experience is a multidimensional program broadly targeted at an array of differing personality constructs. The minimum age (6 years) of this group was two years younger than

the Nowicki-Strickland study (3rd grade) and the possibility that perhaps the Nowicki-Strickland instrument is not fully accurate at this younger age group should be considered.

These results could possibly be confounded by the special character of those who seek voluntary programs. It is the researcher's opinion that measurement of parental values would more accurately reflect the true character traits of those who tend to volunteer for programs, rather than the traits of subjects. The camp experience was provided at no expense and could easily be viewed as an alternative to costly daycare programs. The Nowicki-Strickland method of subject selection was not mentioned.

The statistical difference by race using Nowicki-Strickland Caucasian norms and the present sample of predominantly African-American subjects verifies previous studies showing that African-Americans and individuals from lower socioeconomic backgrounds are more external. Despite the overrepresentation of the lower socioeconomic levels by Nowicki-Strickland (1973) study, the differences were statistically significant. Perhaps this can be interpreted to mean that race is a more influential factor than socioeconomic level.

The current study's results are comparable to those of Amster and Lazarus (1982). This study stressed that LOC is

only one of several determinants of behavior and investigated locus of control for disadvantaged high school dropouts, using a short-term intervention program designed to improve academic and vocational skills. The treatment did not appear to affect locus of control. Gillis (1981) used random assignment of subjects to examine the effects of a three-weekend camping and construction experience on locus of control for high school students. The treatment indicated no effect on locus of control. It appears that length of program and program goals may both be influential factors for producing a change in LOC. Of those treatments that have affected LOC, only those with the specific aims of doing so have been successful.

The present study was able to verify some common trends as found by Nowicki and Strickland. Showing younger age groups of both genders to be more external than older aged groups and younger females more external than younger males compares with previous findings. Contrastingly, older females and younger males were shown to become more external. This finding was not significant but does require some explanation. The change in these groups was very small and consisted of less than one whole point or one complete item from the instrument. This apparent move toward externality should be more accurately described as no change.

The moderate negative correlation of LOC with the

cognitive-informational cluster of the motivation construct does not provide evidence to show that the two constructs are not related. In fact, independent judgment as described by Harter determines the child's ability to make certain judgments rather than relying on the teacher. This ability is correlated with an internal LOC which describes a child as accepting responsibility for these outcomes reached from making judgments. In contrast with Harter's claim, a distinct similarity exits between internal-external LOC and intrinsic-extrinsic MOT. This finding provides an interesting area that merits further research.

Suggestions

In conclusion, rather than a multidimensional program aimed at influencing a number of multifaceted determinants of behavior, perhaps a more structured program aimed specifically at LOC would achieve significantly positive results. More precise records of attendance would enable the researcher to distinguish those posttest-only subjects who attended the majority of the camp experience from those who attended relatively little. This distinction may provide an increased possibility of statistically significant findings for the effect of the camp experience on LOC orientation. Further research is recommended to validate the scale at younger age

groups. Ethnicity as a factor as compared to socioeconomic status should be examined also. Analyses comparing mixed race subjects with African-Americans and Caucasians should be conducted to establish norms for all ethnic backgrounds.

There are certain questions that have been raised by this research. Why do these African-American males fail to become internal with age at a comparable rate as their similar aged Caucasian peers? What is lacking in their social environment that may cause this deficiency? Could it be identified and remedied through instruction aimed at enhancing LOC? Why would these same males fail to become more autonomous as measured by the MOT instrument and is there a relationship between this extrinsic attribution of success/failure to external LOC? Further research is recommended to investigate these issues.

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APPENDIX A

NOWICKI-STRICKLAND LOCUS OF CONTROL SCALE FOR CHILDREN

Name: _____

Class/Grade: ____

Sex: Male ___ Female ___

Age: ___

School: _____

This study is to help us find out how you feel about yourselves. There are no right or wrong answers. Circle only one answer and please answer sincerely.

1.	Do you believe that most problems will solve themselves if you just don't fool with them?	Yes	No
2.	Do you believe that you can stop yourself from catching a cold?	Yes	No
3.	Are some kids just born lucky?	Yes	No
4.	Most of the time do you feel that getting good grades means a great deal to you.	Yes	No
5.	Are you often blamed for things that just aren't your fault.	Yes	No
6.	Do you believe that if somebody studies hard enough he or she can pass any subject?	Yes	No
7.	Do you feel that most of the time it doesn't pay to try hard because things do not turn out right anyway?	Yes	No
8.	Do you feel that if things start out well in the morning that it's going to be a good day no matter what?	Yes	No
9.	Do you feel that most of the time parents listen to what their children have to say?	Yes	No
10.	Do you believe that wishing can make good things happen?	Yes	No
11.	When you get punished does it usually seem its for no good reason at all?	Yes	No
12.	Most of the time do you find it hard to change a friend's (mind) opinion?	Yes	No
13.	Do you feel that it's nearly impossible to change your parent's mind about anything?	Yes	No
14.	Do you believe that your parents should allow you to make most of your own decisions?	Yes	No
15.	Do you feel that when you do something wrong there's very little you can do to make it right?	Yes	No
16.	Do you believe that most kids are just born good at sports?	Yes	No
17.	Are most of the other kids your age stronger than you are?	Yes	No
18.	Do you feel that one of the best ways to handle most problems is just not think about them?	Yes	No
19.	Do you feel that you have a lot of choice in deciding who your friends are?	Yes	No
20.	Do you often feel that whether you do your homework has much to do with what kind of grades you get?	Yes	No

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		Please circle only one answer	
21.	Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?	Yes	No
22.	Do you believe that whether or not people like you depends on how you act?	Yes	No
23.	Will your parents usually help you if you ask them to?	Yes	No
24.	Have you felt that when people were mean to you it was usually for no reason at all?	Yes	No
25.	Most of the time, do you feel that you can change what might happen tomorrow by what you do today?	Yes	No
26.	Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?	Yes	No
27.	Do you think that kids can get their own way if they just keep trying?	Yes	No
28.	Most of the time do you find it useless to try to get your own way at home?	Yes	No
29.	Do you feel that when good things happen they happen because of hard work?	Yes	No
30.	Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?	Yes	No
31.	Do you feel that it's easy to get friends to do what you want them to?	Yes	No
32.	Do you usually feel that you have little to say about what you get to eat at home?	Yes	No
33.	Do you feel that when someone doesn't like you there's little you can do about it?	Yes	No
34.	Do you usually feel that it's almost useless to try in school because other children are just plain smarter than you are?	Yes	No
35.	Are you the kind of person who believes that planning ahead makes things turn out better?	Yes	No
36.	Most of the time, do you feel that you have little say about what your family decides to do?	Yes	No
37.	Do you think it's better to be smart than to be lucky?	Yes	No
38.	Do you think that cheering more than luck helps a team to win?	Yes	No
39.	If you find a four leaf clover do you believe that it might bring you good luck?	Yes	No
40.	Have you ever had a good luck charm?	Yes	No

APPENDIX B

HARTER SCALE OF MOTIVATION

In the Classroom

Pupil's Form

Name _____ Age _____ Birthday (Month) _____ (Day) _____

Grade _____ Teacher _____ Boy or Girl (circle which)

Sample Questions

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
(a)	☐	☐	Some kids would rather play outdoors in their spare time	BUT	Other kids would rather watch T V	☐	☐
(b)	☐	☐	Some kids like hamburgers better than hot dogs	BUT	Other kids like hot dogs better than hamburgers	☐	☐
1	☐	☐	Some kids like hard work because its a challenge	BUT	Other kids prefer easy work that they are sure they can do	☐	☐
2	☐	☐	When some kids don t understand something right away they want the teacher to tell them the answer	BUT	Other kids would rather try and figure it out by themselves	☐	☐
3	☐	☐	Some kids work on problems to learn how to solve them	BUT	Other kids work on problems because you re supposed to	☐	☐
4	☐	☐	Some kids almost always think that what the teacher says is O K	BUT	Other kids sometimes think their own ideas are better	☐	☐
5	☐	☐	Some kids know when they ve made mistakes without checking with the teacher	BUT	Other kids need to check with the teacher to know if they ve made a mistake	☐	☐
6	☐	☐	Some kids like difficult problems because they enjoy trying to figure them out	BUT	Other kids don t like to figure out difficult problems	☐	☐
7	☐	☐	Some kids do their schoolwork because the teacher tells them to	BUT	Other kids do their schoolwork to find out about alot of things they ve been wanting to know	☐	☐

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
8	☐	☐	When some kids make a mistake they would rather figure out the right answer by themselves	BUT	Other kids would rather ask the teacher how to get the right answer	☐	☐
9	☐	☐	Some kids know whether or not they re doing well in school without grades	BUT	Other kids need to have grades to know how well they are doing in school	☐	☐
10	☐	☐	Some kids agree with the teacher because they think the teacher is right about most things	BUT	Other kids don t agree with the teacher sometimes and stick to their own opinion	☐	☐
11	☐	☐	Some kids don't like difficult schoolwork because they have to work too hard.	BUT	Other kids do like difficult schoolwork because they like to figure things out.	☐	☐
12	☐	☐	Some kids like to learn things on their own that interest them	BUT	Other kids think its better to do things that the teacher thinks they should be learning	☐	☐
13	☐	☐	Some kids read things because they are interested in the subject	BUT	Other kids read things because the teacher wants them to	☐	☐
14	☐	☐	Some kids need to get their report cards to tell how they are doing in school	BUT	Other kids know for themselves how they are doing even before they get their report card	☐	☐
15	☐	☐	If some kids get stuck on a problem they ask the teacher for help	BUT	Other kids keep trying to figure out the problem on their own	☐	☐
16	☐	☐	Some kids like to go on to new work that s at a more difficult level	BUT	Other kids would rather stick to the assignments which are pretty easy to do	☐	☐
17	☐	☐	Some kids think that what the teacher thinks of their work is the most important thing	BUT	For other kids what they think of their work is the most important thing	☐	☐
18	☐	☐	Some kids ask questions in class because they want to learn new things	BUT	Other kids ask questions because they want the teacher to notice them	☐	☐
19	☐	☐	Some kids aren t really sure if they ve done well on a test until they get their papers back with a mark on it	BUT	Other kids pretty much know how well they did even before they get their paper back	☐	☐

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	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
20	☐	☐	If a school subject is hard to understand some kids want the teacher to explain it to them.	BUT	Other kids would first like to try to understand it themselves.	☐	☐
21	☐	☐	Some kids think they should have a say in what work they do in school	BUT	Other kids think that the teacher should decide what work they should do	☐	☐
22	☐	☐	Some kids like school subjects where its pretty easy to just learn the answers	BUT	Other kids like those school subjects that make them think pretty hard and figure things out	☐	☐
23	☐	☐	Some kids aren t sure if their work is really good or not until the teacher tells them	BUT	Other kids know if its good or not before the teacher tells them	☐	☐
24	☐	☐	Some kids like to try to figure out how to do school assignments on their own	BUT	Other kids would rather ask the teacher how it should be done	☐	☐
25	☐	☐	Some kids are curious and find that a lot of things they can learn in school are really interesting.	BUT	Other kids are not very curious about the things they learn in school.	☐	☐
26	☐	☐	Some kids think its best if they decide when to work on each school subject	BUT	Other kids think that the teacher is the best one to decide when to work on things	☐	☐
27	☐	☐	Some kids know they didn t do their best on an assignment when they turn it in	BUT	Other kids have to wait til the teacher grades it to know that they didn t do as well as they could have	☐	☐
28	☐	☐	Some kids don t like difficult schoolwork because they have to work too hard	BUT	Other kids like difficult schoolwork because they find it more interesting	☐	☐
29	☐	☐	Some kids like to do their schoolwork without help	BUT	Other kids like to have the teacher help them do their schoolwork		
30	☐	☐	Some kids do their schoolwork because the teacher tells them to.	BUT	Other kids do schoolwork so they can learn a lot of interesting things.	☐	☐

® Susan Harter, Ph.D., University of Denver, 1988.

APPENDIX C

RAW DATA

	Age	Sex	Pretest	Posttest	PC	CI	IM	IJ	IC
1	1	1	22	22	•	•	•	•	•
2	1	0	20	24	9	21	21	12	15
3	1	0	19	•	•	•	•	•	•
4	1	0	24	•	•	•	•	•	•
5	1	0	15	23	•	•	•	•	•
6	1	0	17	•	•	•	•	•	•
7	2	0	18	•	•	•	•	•	•
8	1	0	20	•	•	•	•	•	•
9	1	1	16	•	•	•	•	•	•
10	2	1	19	•	•	•	•	•	•
11	1	0	17	17	12	18	15	12	12
12	2	1	14	16	•	•	•	•	•
13	1	1	21	24	•	•	•	•	•
14	1	1	17	•	•	•	•	•	•
15	1	1	20	•	•	•	•	•	•
16	1	0	18	•	•	•	•	•	•
17	1	0	23	•	•	•	•	•	•
18	2	1	11	•	•	•	•	•	•
19	2	1	20	•	•	•	•	•	•
20	2	1	13	•	•	•	•	•	•
21	2	1	19	18	21	21	18	9	24
22	2	0	20	•	•	•	•	•	•
23	2	0	19	•	•	•	•	•	•
24	2	0	23	15	•	•	•	•	•
25	2	1	17	17	•	•	•	•	•
26	2	1	27	•	•	•	•	•	•
27	2	1	13	13	•	•	•	•	•
28	1	0	23	•	•	•	•	•	•
29	2	0	16	•	•	•	•	•	•
30	2	0	20	•	•	•	•	•	•
31	2	0	23	•	•	•	•	•	•
32	1	1	18	•	•	•	•	•	•
33	2	0	20	•	•	•	•	•	•
34	1	0	18	15	•	•	•	•	•
35	2	1	9	•	•	•	•	•	•
36	2	1	6	•	•	•	•	•	•
37	2	1	24	•	•	•	•	•	•
38	1	0	16	•	•	•	•	•	•
39	2	0	20	•	•	•	•	•	•
40	2	1	22	19	18	15	12	15	18

	Age	Sex	Pretest	Posttest	PC	CI	IM	IJ	IC
41	2	0	23	•	•	•	•	•	•
42	1	•	19	•	•	•	•	•	•
43	2	0	13	•	•	•	•	•	•
44	2	1	22	23	•	•	•	•	•
45	2	1	19	12	•	•	•	•	•
46	2	1	15	•	•	•	•	•	•
47	2	0	19	18	15	18	15	12	12
48	1	0	12	15	•	•	•	•	•
49	1	0	20	12	•	•	•	•	•
50	2	0	22	•	•	•	•	•	•
51	2	1	16	15	•	•	•	•	•
52	2	1	18	16	•	•	•	•	•
53	2	0	18	•	•	•	•	•	•
54	1	1	15	•	•	•	•	•	•
55	2	1	9	•	•	•	•	•	•
56	1	1	12	•	•	•	•	•	•
57	2	0	16	•	•	•	•	•	•
58	2	1	11	•	•	•	•	•	•
59	2	1	13	24	18	12	21	15	18
60	2	0	16	•	•	•	•	•	•
61	1	0	15	•	•	•	•	•	•
62	2	1	15	16	12	18	21	18	15
63	2	1	18	13	18	6	12	15	18
64	2	0	19	17	21	15	21	18	12
65	2	0	19	13	12	24	18	12	15
66	2	1	15	•	•	•	•	•	•
67	1	0	19	•	•	•	•	•	•
68	2	1	18	•	•	•	•	•	•
69	2	0	17	17	24	24	21	12	15
70	1	0	18	19	•	•	•	•	•
71	1	1	22	•	•	•	•	•	•
72	1	1	24	•	•	•	•	•	•
73	1	0	19	21	•	•	•	•	•
74	2	0	18	•	•	•	•	•	•
75	1	0	18	20	21	9	21	9	18
76	2	0	21	24	15	18	18	9	12
77	1	1	18	22	12	24	9	12	12
78	2	0	22	•	•	•	•	•	•
79	2	0	17	13	12	18	12	18	18
80	2	1	9	5	•	•	•	•	•

	Age	Sex	Pretest	Posttest	PC	CI	IM	IJ	IC
81	1	0	19	•	•	•	•	•	•
82	2	0	17	•	•	•	•	•	•
83	2	1	14	•	•	•	•	•	•
84	2	1	22	15	12	18	21	21	15
85	2	0	19	15	12	15	15	12	12
86	2	0	14	17	21	15	18	15	18
87	2	0	20	•	•	•	•	•	•
88	2	0	10	15	•	•	•	•	•
89	1	0	16	•	•	•	•	•	•
90	1	1	24	23	•	•	•	•	•
91	2	0	14	•	•	•	•	•	•
92	2	0	17	22	•	•	•	•	•
93	2	1	17	23	•	•	•	•	•
94	2	0	17	•	•	•	•	•	•
95	2	1	19	21	•	•	•	•	•
96	1	0	22	•	•	•	•	•	•
97	2	1	15	•	•	•	•	•	•
98	2	0	15	•	•	•	•	•	•
99	1	1	22	17	•	•	•	•	•
100	1	0	21	•	•	•	•	•	•
101	1	1	23	•	•	•	•	•	•
102	1	1	23	•	•	•	•	•	•
103	2	0	23	•	•	•	•	•	•
104	1	0	20	•	•	•	•	•	•
105	2	1	21	•	•	•	•	•	•
106	2	1	18	•	•	•	•	•	•
107	1	0	•	17	•	•	•	•	•
108	1	0	•	19	15	9	15	15	15
109	2	0	•	20	•	•	•	•	•
110	2	1	•	20	•	•	•	•	•
111	2	0	•	13	•	•	•	•	•
112	1	0	•	19	•	•	•	•	•
113	1	1	•	21	24	24	24	9	9
114	1	0	•	14	21	18	21	15	18
115	2	1	•	19	21	21	21	15	21
116	1	1	•	22	•	•	•	•	•
117	2	0	•	17	•	•	•	•	•
118	2	0	•	21	•	•	•	•	•
119	2	1	•	19	•	•	•	•	•
120	2	1	•	24	•	•	•	•	•

	Age	Sex	Pretest	Posttest	PC	CI	IM	IJ	IC
121	2	0	•	15	15	18	12	12	15
122	2	0	•	23	15	12	15	18	9
123	1	1	•	13	12	21	12	18	15
124	2	0	•	23	24	15	24	6	15
125	2	0	•	15	12	18	12	18	18
126	2	1	•	22	9	18	12	24	18
127	1	0	•	20	6	18	9	9	21
128	2	0	•	16	•	•	•	•	•
129	2	1	•	16	12	24	21	12	18
130	2	1	•	22	•	•	•	•	•
131	1	0	•	23	•	•	•	•	•
132	1	0	•	20	•	•	•	•	•

	postonly	preonly	pctreat	citreat	imtreat	ijtreat
1	•	19	•	•	•	•
2	•	24	9	21	21	12
3	•	17	•	•	•	•
4	•	18	•	•	•	•
5	•	20	•	•	•	•
6	•	16	•	•	•	•
7	•	19	•	•	•	•
8	•	17	•	•	•	•
9	•	20	•	•	•	•
10	•	18	•	•	•	•
11	•	23	12	18	15	12
12	•	11	•	•	•	•
13	•	20	•	•	•	•
14	•	13	•	•	•	•
15	•	20	•	•	•	•
16	•	19	•	•	•	•
17	•	27	•	•	•	•
18	•	23	•	•	•	•
19	•	16	•	•	•	•
20	•	20	•	•	•	•
21	•	23	21	21	18	9
22	•	18	•	•	•	•
23	•	20	•	•	•	•
24	•	9	•	•	•	•
25	•	6	•	•	•	•
26	•	24	•	•	•	•
27	•	16	•	•	•	•
28	•	20	•	•	•	•
29	•	23	•	•	•	•
30	•	19	•	•	•	•
31	•	13	•	•	•	•
32	•	15	•	•	•	•
33	•	22	•	•	•	•
34	•	18	•	•	•	•
35	•	15	•	•	•	•
36	•	9	•	•	•	•
37	•	12	•	•	•	•
38	•	16	•	•	•	•
39	•	11	•	•	•	•
40	•	16	18	15	12	15

	postonly	preonly	pctreat	citreat	imtreat	ijtreat
41	•	15	•	•	•	•
42	•	15	•	•	•	•
43	•	19	•	•	•	•
44	•	18	•	•	•	•
45	•	22	•	•	•	•
46	•	24	•	•	•	•
47	•	18	15	18	15	12
48	•	22	•	•	•	•
49	•	19	•	•	•	•
50	•	17	•	•	•	•
51	•	14	•	•	•	•
52	•	20	•	•	•	•
53	•	16	•	•	•	•
54	•	14	•	•	•	•
55	•	17	•	•	•	•
56	•	22	•	•	•	•
57	•	15	•	•	•	•
58	•	15	•	•	•	•
59	•	21	18	12	21	15
60	•	23	•	•	•	•
61	•	23	•	•	•	•
62	•	23	12	18	21	18
63	•	20	18	6	12	15
64	•	21	21	15	21	18
65	•	18	12	24	18	12
66	•	•	•	•	•	•
67	•	•	•	•	•	•
68	•	•	•	•	•	•
69	•	•	24	24	21	12
70	•	•	•	•	•	•
71	•	•	•	•	•	•
72	•	•	•	•	•	•
73	•	•	•	•	•	•
74	•	•	•	•	•	•
75	•	•	21	9	21	9
76	•	•	15	18	18	9
77	•	•	12	24	9	12
78	•	•	•	•	•	•
79	•	•	12	18	12	18
80	•	•	•	•	•	•

	postonly	preonly	pctreat	citreat	imtreat	ijtreat
81	.	.	.	.	.	.
82	.	.	.	.	.	.
83	.	.	.	.	.	.
84	.	.	12	18	21	21
85	.	.	12	15	15	12
86	.	.	21	15	18	15
87	.	.	.	.	.	.
88	.	.	.	.	.	.
89	.	.	.	.	.	.
90	.	.	.	.	.	.
91	.	.	.	.	.	.
92	.	.	.	.	.	.
93	.	.	.	.	.	.
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96	.	.	.	.	.	.
97	.	.	.	.	.	.
98	.	.	.	.	.	.
99	.	.	.	.	.	.
100	.	.	.	.	.	.
101	.	.	.	.	.	.
102	.	.	.	.	.	.
103	.	.	.	.	.	.
104	.	.	.	.	.	.
105	.	.	.	.	.	.
106	.	.	.	.	.	.
107	17	.	.	.	.	.
108	19	.	.	.	.	.
109	20	.	.	.	.	.
110	20	.	.	.	.	.
111	13	.	.	.	.	.
112	19	.	.	.	.	.
113	21	.	.	.	.	.
114	14	.	.	.	.	.
115	19	.	.	.	.	.
116	22	.	.	.	.	.
117	17	.	.	.	.	.
118	21	.	.	.	.	.
119	19	.	.	.	.	.
120	24	.	.	.	.	.

	postonly	preonly	pctreat	citreat	imtreat	ijtreat
121	15	•	•	•	•	•
122	23	•	•	•	•	•
123	13	•	•	•	•	•
124	23	•	•	•	•	•
125	15	•	•	•	•	•
126	22	•	•	•	•	•
127	20	•	•	•	•	•
128	16	•	•	•	•	•
129	16	•	•	•	•	•
130	22	•	•	•	•	•
131	23	•	•	•	•	•
132	20	•	•	•	•	•

	ictreat	pcpostonly	cipostonly	impostonly	ijpostonly
41	.	.	.	.	.
42	.	.	.	.	.
43	.	.	.	.	.
44	.	.	.	.	.
45	.	.	.	.	.
46	.	.	.	.	.
47	12	.	.	.	.
48	.	.	.	.	.
49	.	.	.	.	.
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51	.	.	.	.	.
52	.	.	.	.	.
53	.	.	.	.	.
54	.	.	.	.	.
55	.	.	.	.	.
56	.	.	.	.	.
57	.	.	.	.	.
58	.	.	.	.	.
59	18	.	.	.	.
60	.	.	.	.	.
61	.	.	.	.	.
62	15	.	.	.	.
63	18	.	.	.	.
64	12	.	.	.	.
65	15	.	.	.	.
66	.	.	.	.	.
67	.	.	.	.	.
68	.	.	.	.	.
69	15	.	.	.	.
70	.	.	.	.	.
71	.	.	.	.	.
72	.	.	.	.	.
73	.	.	.	.	.
74	.	.	.	.	.
75	18	.	.	.	.
76	12	.	.	.	.
77	12	.	.	.	.
78	.	.	.	.	.
79	18	.	.	.	.
80	.	.	.	.	.

	ictreat	pcpostonly	cipostonly	impostonly	ijpostonly
1	.	.	.	.	.
2	15	.	.	.	.
3	.	.	.	.	.
4	.	.	.	.	.
5	.	.	.	.	.
6	.	.	.	.	.
7	.	.	.	.	.
8	.	.	.	.	.
9	.	.	.	.	.
10	.	.	.	.	.
11	12	.	.	.	.
12	.	.	.	.	.
13	.	.	.	.	.
14	.	.	.	.	.
15	.	.	.	.	.
16	.	.	.	.	.
17	.	.	.	.	.
18	.	.	.	.	.
19	.	.	.	.	.
20	.	.	.	.	.
21	24	.	.	.	.
22	.	.	.	.	.
23	.	.	.	.	.
24	.	.	.	.	.
25	.	.	.	.	.
26	.	.	.	.	.
27	.	.	.	.	.
28	.	.	.	.	.
29	.	.	.	.	.
30	.	.	.	.	.
31	.	.	.	.	.
32	.	.	.	.	.
33	.	.	.	.	.
34	.	.	.	.	.
35	.	.	.	.	.
36	.	.	.	.	.
37	.	.	.	.	.
38	.	.	.	.	.
39	.	.	.	.	.
40	18	.	.	.	.

	ictreat	pcpostonly	cipostonly	impostonly	ijpostonly
81	.	.	.	.	.
82	.	.	.	.	.
83	.	.	.	.	.
84	15	.	.	.	.
85	12	.	.	.	.
86	18	.	.	.	.
87	.	.	.	.	.
88	.	.	.	.	.
89	.	.	.	.	.
90	.	.	.	.	.
91	.	.	.	.	.
92	.	.	.	.	.
93	.	.	.	.	.
94	.	.	.	.	.
95	.	.	.	.	.
96	.	.	.	.	.
97	.	.	.	.	.
98	.	.	.	.	.
99	.	.	.	.	.
100	.	.	.	.	.
101	.	.	.	.	.
102	.	.	.	.	.
103	.	.	.	.	.
104	.	.	.	.	.
105	.	.	.	.	.
106	.	.	.	.	.
107	.	.	.	.	.
108	.	15	9	15	15
109	.	.	.	.	.
110	.	.	.	.	.
111	.	.	.	.	.
112	.	.	.	.	.
113	.	24	24	24	9
114	.	21	18	21	15
115	.	21	21	21	15
116	.	.	.	.	.
117	.	.	.	.	.
118	.	.	.	.	.
119	.	.	.	.	.
120	.	.	.	.	.

	lctreet	pcpostonly	cipostonly	impostonly	ljpostonly
121	•	15	18	12	12
122	•	15	12	15	18
123	•	12	21	12	18
124	•	24	15	24	6
125	•	12	18	12	18
126	•	9	18	12	24
127	•	6	18	9	9
128	•	•	•	•	•
129	•	12	24	21	12
130	•	•	•	•	•
131	•	•	•	•	•
132	•	•	•	•	•

	icpostonly	motclustreat	cogclustrea	motcluspos	cogcluspos
1	•	•	•	•	•
2	•	51.000	27.000	•	•
3	•	•	•	•	•
4	•	•	•	•	•
5	•	•	•	•	•
6	•	•	•	•	•
7	•	•	•	•	•
8	•	•	•	•	•
9	•	•	•	•	•
10	•	•	•	•	•
11	•	45.000	24.000	•	•
12	•	•	•	•	•
13	•	•	•	•	•
14	•	•	•	•	•
15	•	•	•	•	•
16	•	•	•	•	•
17	•	•	•	•	•
18	•	•	•	•	•
19	•	•	•	•	•
20	•	•	•	•	•
21	•	60.000	33.000	•	•
22	•	•	•	•	•
23	•	•	•	•	•
24	•	•	•	•	•
25	•	•	•	•	•
26	•	•	•	•	•
27	•	•	•	•	•
28	•	•	•	•	•
29	•	•	•	•	•
30	•	•	•	•	•
31	•	•	•	•	•
32	•	•	•	•	•
33	•	•	•	•	•
34	•	•	•	•	•
35	•	•	•	•	•
36	•	•	•	•	•
37	•	•	•	•	•
38	•	•	•	•	•
39	•	•	•	•	•
40	•	45.000	33.000	•	•

	icpostonly	motclustreat	cogclustrea	motcluspos	cogcluspos
41	•	•	•	•	•
42	•	•	•	•	•
43	•	•	•	•	•
44	•	•	•	•	•
45	•	•	•	•	•
46	•	•	•	•	•
47	•	48.000	24.000	•	•
48	•	•	•	•	•
49	•	•	•	•	•
50	•	•	•	•	•
51	•	•	•	•	•
52	•	•	•	•	•
53	•	•	•	•	•
54	•	•	•	•	•
55	•	•	•	•	•
56	•	•	•	•	•
57	•	•	•	•	•
58	•	•	•	•	•
59	•	51.000	33.000	•	•
60	•	•	•	•	•
61	•	•	•	•	•
62	•	51.000	33.000	•	•
63	•	36.000	33.000	•	•
64	•	57.000	30.000	•	•
65	•	54.000	27.000	•	•
66	•	•	•	•	•
67	•	•	•	•	•
68	•	•	•	•	•
69	•	69.000	27.000	•	•
70	•	•	•	•	•
71	•	•	•	•	•
72	•	•	•	•	•
73	•	•	•	•	•
74	•	•	•	•	•
75	•	51.000	27.000	•	•
76	•	51.000	21.000	•	•
77	•	45.000	24.000	•	•
78	•	•	•	•	•
79	•	42.000	36.000	•	•
80	•	•	•	•	•

	icpostonly	motclustreat	cogclustreo	motcluspos	cogcluspos
81	.	.	.	.	.
82	.	.	.	.	.
83	.	.	.	.	.
84	.	51.000	36.000	.	.
85	.	42.000	24.000	.	.
86	.	54.000	33.000	.	.
87	.	.	.	.	.
88	.	.	.	.	.
89	.	.	.	.	.
90	.	.	.	.	.
91	.	.	.	.	.
92	.	.	.	.	.
93	.	.	.	.	.
94	.	.	.	.	.
95	.	.	.	.	.
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97	.	.	.	.	.
98	.	.	.	.	.
99	.	.	.	.	.
100	.	.	.	.	.
101	.	.	.	.	.
102	.	.	.	.	.
103	.	.	.	.	.
104	.	.	.	.	.
105	.	.	.	.	.
106	.	.	.	.	.
107	.	.	.	.	.
108	15	.	.	39.000	30.000
109	.	.	.	.	.
110	.	.	.	.	.
111	.	.	.	.	.
112	.	.	.	.	.
113	9	.	.	72.000	18.000
114	18	.	.	60.000	33.000
115	21	.	.	63.000	36.000
116	.	.	.	.	.
117	.	.	.	.	.
118	.	.	.	.	.
119	.	.	.	.	.
120	.	.	.	.	.

	icpostonly	motclustreet	cogclustree	motcluspos	cogcluspos
121	15	•	•	45.000	27.000
122	9	•	•	42.000	27.000
123	15	•	•	45.000	33.000
124	15	•	•	63.000	21.000
125	18	•	•	42.000	36.000
126	18	•	•	39.000	42.000
127	21	•	•	33.000	30.000
128	•	•	•	•	•
129	18	•	•	57.000	30.000
130	•	•	•	•	•
131	•	•	•	•	•
132	•	•	•	•	•

Table 1 -Comparison of Pretest Sample and Population Means for the Younger Age Group

One Sample t-Test X_1: Pretest

DF:	Sample Mean:	Pop. Mean:	t Value:	Prob. (2-tail):
39	19.125	18.15	1.98	.0548

Note: 10 cases deleted with missing values.

Table 2 -Comparison of Pretest Sample and Population Means for the Older Age Group

One Sample t-Test X_1: Pretest

DF:	Sample Mean:	Pop. Mean:	t Value:	Prob. (2-tail):
65	17.318	14.56	5.451	.0001

Note: 16 cases deleted with missing values.

Table 3 -Comparison of Posttest Sample and Population Means for the Younger Group

One Sample t-Test X_1: Posttest

DF:	Sample Mean:	Pop. Mean:	t Value:	Prob. (2-tail):
23	19.25	18.15	1.522	.1417

Note: 26 cases deleted with missing values.

Table 4 -Comparison of Posttest Sample and Population Means for the Older Group

One Sample t-Test X_1: Posttest

DF:	Sample Mean:	Pop. Mean:	t Value:	Prob. (2-tail):
42	17.605	14.56	4.903	.0001

Note: 39 cases deleted with missing values.

Table 5 -Posttest ANOVA Comparisons of Control and Experimental Groups

One Factor ANOVA X_1: group Y_1: Posttest

Analysis of Variance Table

Source:	DF:	Sum Squares:	Mean Square:	F-test:
Between groups	1	25.028	25.028	1.624
Within groups	65	1001.449	15.407	p = .207
Total	66	1026.478		

Model II estimate of between component variance = 9.621

1

One Factor ANOVA X_1: group Y_1: Posttest

Group:	Count:	Mean:	Std. Dev.:	Std. Error:
control	26	18.962	3.268	.641
experimental	41	17.707	4.285	.669

2

One Factor ANOVA X_1: group Y_1: Posttest

Comparison:	Mean Diff.:	Fisher PLSD:	Scheffe F-test:	Dunnett t:
control vs. experimental	1.254	1.965	1.624	1.275

3

Table 6 -Pretest/Posttest t-Test Comparison of Experimental Group

Paired t-Test X_1: Posttest Y_1: Pretest

DF:	Mean X - Y:	Paired t value:	Prob. (2-tail):
40	-.146	-.217	.8295

Note: 26 cases deleted with missing values.

Table 7 -Pretest ANOVA Examining Effects of Gender and Age

Anova table for a 2-factor Analysis of Variance on Y_1: Pretest

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Age (A)	1	35.392	35.392	3.353	.0751
Sex (B)	1	23.313	23.313	2.209	.1457
AB	1	45.956	45.956	4.354	.0439
Error	37	390.542	10.555		

1

There were no missing cells found.

The AB Incidence table on Y_1: Pretest

	Sex:	level 1	level 2	Totals:
Age	level 1	9 17.444	5 21.4	14 18.857
	level 2	11 17.727	16 17.062	27 17.333
Totals:		20 17.6	21 18.095	41 17.854

2

Table 8 -Posttest ANOVA Examining Effects of Gender and Age

Anova table for a 2-factor Analysis of Variance on Y_1: Posttest

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Age (A)	1	55.133	55.133	3.599	.0624
Sex (B)	1	16.668	16.668	1.088	.3009
AB	1	8.951	8.951	.584	.4475
Error	63	965.135	15.32		

1

There were no missing cells found.

The AB Incidence table on Y_1: Posttest

	Sex:	level 1	level 2	Totals:
Age	level 1	16 18.625	8 20.5	24 19.25
	level 2	20 17.45	23 17.739	43 17.605
Totals:		36 17.972	31 18.452	67 18.194

2

Table 9 -Relation of LOC Posttest and IJ Subscale of MOT

Correlation Matrix for Variables: X_1 ... X_{11}

	Age	Sex	Pretest	Posttest	PC	CI	IM	IJ
Age	1							
Sex	.152	1						
Pretest	-.019	-.008	1					
Posttest	-.428	.057	.002	1				
PC	.288	.004	-.223	.027	1			
CI	-.093	-.147	.173	.073	-.304	1		
IM	.093	-.183	-.148	.199	.251	.017	1	
IJ	.386	.318	-.097	-.43	-.164	-.163	.069	1
IC	.209	.409	-.185	-.097	.438	-.234	.074	-.031
motclus	.159	-.191	-.098	.17	.53	.484	.69	-.169
cogclus	.43	.521	-.202	-.384	.187	-.284	.103	.713

1

Note: 49 cases deleted with missing values.

Correlation Matrix for Variables: X_1 ... X_{11}

	IC	motclus	cogclus
IC	1		
motclus	.147	1	
cogclus	.679	-.021	1

2

Table 10 -Simple Regression of COGCLUS and LOC Posttest

Simple Regression X_1: cogclus Y_1: Posttest

DF:	R:	R-squared:	Adj. R-squared:	Std. Error:
29	.332	.11	.078	3.447

Analysis of Variance Table

Source	DF:	Sum Squares:	Mean Square:	F-test:
REGRESSION	1	41.224	41.224	3.47
RESIDUAL	28	332.643	11.88	p = .073
TOTAL	29	373.867		

No Residual Statistics Computed

Note: 37 cases deleted with missing values.

1

Simple Regression X_1: cogclus Y_1: Posttest

Beta Coefficient Table

Parameter:	Value:	Std. Err.:	Std. Value:	t-Value:	Probability:
INTERCEPT	24.55				
SLOPE	-.219	.118	-.332	1.863	.073

Confidence Intervals Table

Parameter:	95% Lower:	95% Upper:	90% Lower:	90% Upper:
MEAN (X,Y)	16.777	19.356	16.996	19.137
SLOPE	-.46	.022	-.419	-.019

2

Table 11 -All Pretests ANOVA Examining Effects of Gender and Age

Anova table for a 2-factor Analysis of Variance on Y_1: Pretest

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Age (A)	1	88.743	88.743	6.413	.0129
Sex (B)	1	5.215	5.215	.377	.5407
AB	1	57.693	57.693	4.169	.0438
Error	101	1397.661	13.838		

1

There were no missing cells found. 1 case deleted with missing values.

The AB Incidence table on Y_1: Pretest

	Sex:	level 1	level 2	Totals:
Age	level 1	24 18.708	15 19.8	39 19.128
	level 2	33 18.333	33 16.303	66 17.318
Totals:		57 18.491	48 17.396	105 17.99

2

Table 12 -Internal Criteria Subscale ANOVA Showing Effects of Gender and Age

Anova table for a 2-factor Analysis of Variance on Y_1: IC

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Age (A)	1	24.01	24.01	2.815	.1054
Sex (B)	1	.25	.25	.029	.8654
AB	1	106.09	106.09	12.439	.0016
Error	26	221.75	8.529		

1

There were no missing cells found. 1 case deleted with missing values.

The AB Incidence table on Y_1: IC

	Sex:	level 1	level 2	Totals:
Age	level 1	6 16.5	3 12	9 15
	level 2	12 14.25	9 18.333	21 16
Totals:		18 15	12 16.75	30 15.7

2

Table 13 -Curiosity/Interest Subscale ANOVA Showing Effects of Gender and Age

Anova table for a 2-factor Analysis of Variance on Y_1: CI

Source:	df:	Sum of Squares:	Mean Square:	F-test:	P value:
Age (A)	1	23.04	23.04	1.164	.2905
Sex (B)	1	70.56	70.56	3.566	.0702
AB	1	92.16	92.16	4.657	.0403
Error	26	514.5	19.788		

1

There were no missing cells found. 1 case deleted with missing values.

The AB Incidence table on Y_1: CI

	Sex:	level 1	level 2	Totals:
Age	level 1	6 15.5	3 23	9 18
	level 2	12 17.5	9 17	21 17.286
Totals:		18 16.833	12 18.5	30 17.5

2

Abstract

This study was conducted to evaluate the relationship between locus of control (LOC) and motivation (MOT). The effects of a multidimensional summer camp program on the LOC of 41 children at-risk for academic failure was also examined. These children were given a pre- and posttest at the beginning and end of the six week summer camp. The effects of the program from pre- to posttest were not statistically significant, however, the pretest scores were significantly more external than previously established norms. Statistical significance was also found by age and gender with younger females being the most external and older males being the most internal. A moderate negative correlation was found linking one of the five MOT subscales (independent judgement) with LOC.

APPROVAL OF EXAMINING COMMITTEE

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11 Nov 91
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